Tier 2 Site Cleanup Reports Accuracy Review Checklist

Version 2 Software

The following document is used to review Tier 2V2.X Reports and conversions to Tier 2V2.X Reports. Additional comments are written, if necessary, in the margins referencing the area of concern. Responses may fall into the following categories:

Y - YES. Information meets qualifications as intended or presents the correct information.
N - NO.
N/A - Not Applicable.
Unk - Unknown. Not enough information provided to draw conclusion.
1- Information is *inadequate*
2- Information is *inaccurate*
3- Information not provided

LUST/Reg. No.:_____ Site Name/Location:_____

Initial Tier 2 Y N Revised Tier 2 Submittal Y N

Date Tier 2 Report Received:_____ Date Tier 2 Review Completed:_____

Reviewer:_____

Results of Review: _____Accepted _____Rejected

T2 Classification: _____High _____Low _____NAR

Does the disk contain files for the Tier 2 evaluation? Y N N/A

If no, why?_____

Are commingled plumes present? Y N N/A

Enter LUST number(s):_____

Current Site Conditions (check applicable items, circle contaminant source(s)).
_____Active USTs_____Inactive USTs_____Removed USTs
_____Gasoline/Diesel_____Waste Oil_____Other

I. TIER 2 REPORT - BODY

A. TITLE PAGE:

Is the title page complete? ..... Y N 1 2 3

List deficiencies: _____

_____

B. TIER 2 REPORT CHECKLIST (PAGES 2 & 3)

Attachments checked are in report or referenced to a previously submitted report? ..... Y N N/A 1 2 3

C. TIER 2 DATA BEFORE MODELING: SUMMARY (PAGES 4 & 5):

Free product Present? ..... Y N N/A 1 2 3

SCR conversion? ..... Y N N/A 1 2 3

TEH required / reported? ..... Y N N/A 1 2 3

Bedrock present? ..... Y N N/A 1 2 3

Groundwater Maximums correct? ..... Y N N/A 1 2 3

Are the source locations (x, y coordinates) accurate? ..... Y N N/A 1 2 3

Soil Maximums correct? ..... Y N N/A 1 2 3

Are the source locations (x, y coordinates) accurate? ..... Y N N/A 1 2 3

Soil Gas Maximums correct? ..... Y N N/A 1 2 3

Was any data ignored (under Data Adjustment section in software)? ..... Y N N/A 1 2 3

If "Yes" has an adequate justification been provided for exclusion? ..... Y N N/A 1 2 3

Initial Receptor evaluation subsection completed? ..... Y N N/A 1 2 3

List deficiencies: _____

_____

D. SITE HYDROGEOLOGY

Flow Migration

Are the main plume/ flow direction and head gradient values consistent with the Groundwater Contour Map and Contamination Plume Maps? ..... Y N N/A 1 2 3

Does hydraulic conductivity value match maximum computed? ..... Y N N/A 1 2 3

Of the range of plume direction and range of groundwater flow direction, was the maximum entered? ..... Y N N/A 1 2 3

If head gradient is equal to or less than 0.005, was a range of plume/flow set to at least 150 degrees? ..... Y N N/A 1 2 3

Source Dimensions

Soil and groundwater source widths & lengths are maximums? ..... Y N N/A 1 2 3

If not, has an adequate justification been provided? ..... Y N N/A 1 2 3

Maps of actual soil and groundwater contamination plumes / source dimensions provided? .... Y N N/A 1 2 3

Do the source dimensions agree with the maps? ..... Y N N/A 1 2 3

Have default values been used? ..... Y N N/A 1 2 3

Soil Parameters

If measured values are used, have actual values been input to replace the defaults for all three soil parameters?

..... Y N N/A 1 2 3

Groundwater Source Concentrations:

(Cross reference with Groundwater Contamination Plume Maps/ Groundwater Analytical Data in T2 SCR)

Are the source locations (x, y coordinates) accurate? ..... Y N N/A 1 2 3

Justification for "NO" response to TEH (Diesel/Waste Oil required)? ..... Y N N/A 1 2 3

Justification for gradient used at site? ..... Y N N/A 1 2 3

Justification for the variables used at the site? ..... Y N N/A 1 2 3

Soil Source Concentrations:

(Cross reference with Soil Contamination Plume Maps/ Soil Analytical Data in T2 SCR)

Are the maximums entered selected from the most recent sampling event ? ..... Y N N/A 1 2 3

Are the source locations (x, y coordinates) accurate? ..... Y N N/A 1 2 3

Receptors: (Cross reference with Receptor ID plumes and Receptor Survey Maps in T2 SCR)

Have all receptors within the receptor id plumes been input for each groundwater and soil leaching pathway?

..... Y N N/A 1 2 3

Are the receptor locations (x, y coordinates) accurate? ..... Y N N/A 1 2 3

Have the source wells been identified as potential receptors (for the groundwater ingestion and groundwater pathways)?

..... Y N N/A 1 2 3

List deficiencies: _____

_____

E. PRELIMINARY PATHWAY EVALUATION REQUIREMENTS

Have questions from software been answered? ..... Y N N/A 1 2 3

List deficiencies: _____

_____

F. TIER 2 RECEPTOR SUMMARY (PAGES 7 AND 8)

(1) Groundwater Source, Tier 2 Receptor Summary

All required pathways evaluated (receptor type and risk identified)? ..... Y N N/A 1 2 3

List omitted pathways and receptors: _____

_____

_____

(2) Soil Leaching T2 Receptor Summary

All pathway receptors required to be evaluated and listed under soil leaching? ..... Y N N/A 1 2 3

List omitted pathways and receptors: _____

_____

_____

(3) Soil Vapor/Soil to Plastic Water Line Receptor Summary

If pathways, at T2, are initially classified NAR, confirmation samples collected? ..... Y N N/A 1 2 3

Corrective Action selected for each failed pathway? ..... Y N N/A 1 2 3

Current Risk identified? ..... Y N N/A 1 2 3

"Go to Tier 3" is selected if Corrective Action not designated? ..... Y N N/A 1 2 3

"Corrective Action Summary Completed" provided? ..... Y N N/A 1 2 3

List omitted pathways and receptors: _____

_____

_____

G. SAMPLING RESULTS

Verify sections are complete with *all previously obtained data for the site*. List deficiencies after each subsection.

Has a certified Lab been used for applicable samples of soil and groundwater obtained after August 31, 1995?

..... Y N N/A 1 2 3

Has a certified Lab been used for applicable samples of soil gas obtained after September 1, 1998?

..... Y N N/A 1 2 3

1. Field Screening information tabulated?(not required for conversion of "Approved SCR"): ..... Y N N/A 1 2 3

List deficiencies: _____

_____

2. Soil Boring / Monitoring Well Placement:
Adequate justification that sources are located is provided? ..... Y N N/A 1 2 3

List deficiencies: _____

_____

3. Soil Analytical Data:
Appropriate Group 1 and 2 chemicals analyzed? ..... Y N N/A 1 2 3
All current and historical data included? ..... Y N N/A 1 2 3
BTEX levels determined from TPH/TEH defaults are identified? ..... Y N N/A 1 2 3
TPH defaults: B - 1%, T - 7%, E - 2%, X - 8%.
TEH defaults: B - 0.004%, T - 0.05%, E - 0.03%, X - 0.3%.

List deficiencies: _____

_____

4. Groundwater Analytical Data:
Appropriate Group 1 and 2 chemicals analyzed? ..... Y N N/A 1 2 3
All current and historical data included (specifically SMRs)? ..... Y N N/A 1 2 3
Adequate data provided to construct a Groundwater Flow Direction Map: ..... Y N N/A 1 2 3

List deficiencies: _____

_____

5. Soil Gas Analytical Data:
Justification for representativeness of samples provided? ..... Y N N/A 1 2 3
Justification for sample locations provided ? ..... Y N N/A 1 2 3
Sample locations are adequate to clear soil source, groundwater source, or individual receptors as claimed? ..... Y N N/A 1 2 3

List deficiencies: _____

_____

6. Indoor Vapor Analytical Data:
Justification for the representativeness of samples provided? ..... Y N N/A 1 2 3

List deficiencies: _____

_____

RECEPTOR SURVEYS (PAGES 14 - 18)

Verify sections are complete or referenced to a previously submitted report. List deficiencies after each subsection.

H. RECEPTOR SURVEY - GROUNDWATER WELL SURVEY (CROSS REFERENCE WITH APPENDIX 19):

Well survey completed includes 1,000 foot radius distance from source? ..... Y N N/A 1 2 3

Survey includes all areas within the receptor ID plumes and actual plumes for soil leaching and groundwater ingestion pathways? ..... Y N N/A 1 2 3

Performed a property owner or pedestrian survey to locate *all* water wells within 300' of the contaminant source(s)? ..... Y N N/A 1 2 3

Non-granular bedrock sites - survey identifies public water supply wells within one mile and all water wells within 1,000' of contaminant sources ..... Y N N/A 1 2 3

Names and addresses of all well owners provided or previous submitted report referenced? ..... Y N N/A 1 2 3

Names of public entities contacted to determine well locations provided? ..... Y N N/A 1 2 3

Well survey is current (public entities contacted within last year)? ..... Y N N/A 1 2 3

Well plugging methods not in accordance with 567-Chapter 39 IAC are described? ..... Y N N/A 1 2 3

List deficiencies: _____

_____

I. RECEPTOR SURVEY - AFFECTED PROPERTY OWNER TABLE (PAGE 15) (CROSS REFERENCE WITH ATTACHMENTS/APPENDIX 15)

All property owners within the largest applicable (a high/low risk receptor is present) receptor ID plume / actual plume are listed, including addresses?

..... Y N N/A 1 2 3

List deficiencies: _____

_____

J. RECEPTOR SURVEY - COMMINGLED PLUME DISCUSSION ..... Y N N/A 1 2 3

Sites (s) commingled identified? ..... Y N N/A 1 2 3

Name(s) and address(es) of property owners within commingled plumes listed? ..... Y N N/A 1 2 3

Commingled status justified? ..... Y N N/A 1 2 3

List deficiencies: _____

_____

K. OFF-SITE CONTAMINATION SOURCE SUPPORT DISCUSSION .....Y N N/A 1 2 3

Site(s) of contamination identified? .....Y N N/A 1 2 3

Does discussion and documentation support an off-site source(s)? .....Y N N/A 1 2 3

List deficiencies: _____

_____

L. FREE PRODUCT.....Y N N/A 1 2 3

Description of free product recovery activities and other required information provided? .....Y N N/A 1 2 3

Narrative discusses status and effectiveness of product recovery? .....Y N N/A 1 2 3

List deficiencies: _____

_____

M. RECEPTOR SURVEY - ENCLOSED SPACE/CONDUIT SURVEY (CROSS REFERENCE WITH ATTACHMENT/APPENDIX 24):

All basements, sanitary sewer lines, and plastic water lines within the receptor ID plumes identified? .....Y N N/A 1 2 3

Construction details of conduits and confined spaces provided? .....Y N N/A 1 2 3

Explosive vapor survey of nearest receptors conducted? .....Y N N/A 1 2 3

Have any storm sewers connected to buildings been identified? .....Y N Unk

List deficiencies: _____

_____

N. RECEPTOR SURVEY - SURFACE WATER SURVEY (PAGE 18)(CROSS REFERENCE WITH ATTACHMENT/APPENDIX 25):

Designated use surface water bodies within 500 feet identified? .....Y N N/A 1 2 3

All surface water bodies within the receptor ID plumes identified? .....Y N N/A 1 2 3

Surface water body details provided? .....Y N N/A 1 2 3

Visual inspection of all surface water bodies conducted? .....Y N N/A 1 2 3

Is a petroleum sheen or residue attributable to this site present? .....Y N N/A 1 2 3

List deficiencies: _____

_____

O. Risk Justification & Corrective Action (page 19)

Description of corrective action recommendation provided for each pathway? ..... Y N N/A 1 2 3

High risk receptors requiring remediation identified? ..... Y N N/A 1 2 3

Lowest soil source SSTL and receptor for which it was calculated provided? ..... Y N N/A 1 2 3

Lowest groundwater source SSTL and receptor for which it was calculated provided? ..... Y N N/A 1 2 3

List deficiencies: _____

_____

P. Monitoring Plan (page 21)

Soil Gas Monitoring: (If the soil vapor to enclosed space pathway is complete, a plan must be provided).

Justification section includes list of receptors to be monitored using soil gas? ..... Y N N/A 1 2 3

Justification included for monitoring more frequently than annually? ..... Y N N/A 1 2 3

Have the soil gas monitoring locations, each associated receptor, and monitoring frequency been listed? ..... Y N N/A 1 2 3

List deficiencies: _____

_____

Groundwater Monitoring Plan Table:

A separate table been completed for each applicable chemical identified by the Receptor ID Plume Maps? ..... Y N N/A 1 2 3

Groundwater Monitoring Plan Comments/Justification section is completed? ..... Y N N/A 1 2 3

List deficiencies: _____

_____

II. PATHWAY ASSESSMENT ATTACHMENTS

A. Groundwater Pathways.

(Cross reference pathway attachments submitted with those boxes checked in the report checklist (pages 2 and 3)).

1a. Groundwater Ingestion—Drinking water well. Required to be evaluated? Y N

Receptor ID Plume Map showing simulated plumes, receptors, and site features provided? ..... Y N N/A 1 2 3

Attachments provided for each chemical of concern requiring documentation? ..... Y N N/A 1 2 3

Receptor Evaluation Map(s) for each receptor inside receptor ID plume provided? ..... Y N N/A 1 2 3

SSTL table provided for each receptor within the receptor ID plume? ..... Y N N/A 1 2 3

List deficiencies: _____

_____

_____

1b. Groundwater Ingestion - Non-drinking water well Required to be evaluated? Y N

Receptor ID Plume Map showing simulated plumes, receptors, and site features provided? ..... Y N N/A 1 2 3

Attachments provided for each chemical of concern requiring documentation? ..... Y N N/A 1 2 3

Receptor Evaluation Map(s) for each receptor inside receptor ID plume provided? ..... Y N N/A 1 2 3

Have all monitoring wells which exceed a Tier 1 level been appropriately selected for a property boundary? ..... Y N N/A 1 2 3

SSTL table provided for each receptor within the receptor ID plume? ..... Y N N/A 1 2 3

List deficiencies: _____

_____

_____

2. Groundwater Ingestion—Protected GW source Required to be evaluated? Y N

Receptor ID Plume Map showing simulated plumes, receptors, and site features provided? ..... Y N N/A 1 2 3

Attachments provided for each chemical of concern requiring documentation? ..... Y N N/A 1 2 3

Receptor Evaluation Map(s) provided showing the closest boundary in each direction and an SSTL line area for most limiting boundary? ..... Y N N/A 1 2 3

Have all monitoring wells which exceed a Tier 1 level been appropriately selected for a property boundary? ..... Y N N/A 1 2 3

SSTL table provided for each receptor within the receptor ID plume? ..... Y N N/A 1 2 3

List deficiencies: _____

_____

_____

3a. Groundwater Vapor—Confined Space—Residential. Required to be evaluated? Y N

Is the source area(s) zoned for residential use? ..... Y N N/A 1 2 3

Receptor ID Plume Map showing simulated plumes, receptors, and site features provided? ..... Y N N/A 1 2 3

Attachments provided for each chemical of concern requiring documentation? ..... Y N N/A 1 2 3

Receptor Evaluation Map(s) for each receptor inside receptor ID plume provided? ..... Y N N/A 1 2 3

SSTL table provided for each receptor within the receptor ID plume? ..... Y N N/A 1 2 3

List deficiencies: _____

_____

_____

3b. Groundwater Vapor—Confined Space—Nonresidential. Required to be evaluated? Y N

Is the source area(s) zoned for residential use?	Y	N	N/A	1	2	3
Receptor ID Plume Map showing simulated plumes, receptors, and site features provided?	Y	N	N/A	1	2	3
Attachments provided for each chemical of concern requiring documentation?	Y	N	N/A	1	2	3
Receptor Evaluation Map(s) for each receptor inside receptor ID plume provided?	Y	N	N/A	1	2	3
SSTL table provided for each receptor within the receptor ID plume?	Y	N	N/A	1	2	3

List deficiencies: _____

4. Groundwater Vapor—Confined Space—Potential. Required to be evaluated? Y N

Is the source area(s) zoned for residential use?	Y	N	N/A	1	2	3
Receptor ID Plume Map showing simulated plumes, receptors, and site features provided?	Y	N	N/A	1	2	3
Attachments provided for each chemical of concern requiring documentation?	Y	N	N/A	1	2	3
Receptor Evaluation Map(s) showing potential receptor boundaries, most limiting SSTL line, and wells selected as T & G wells provided?	Y	N	N/A	1	2	3
SSTL table provided for each receptor within the receptor ID plume?	Y	N	N/A	1	2	3

List deficiencies: _____

5a Groundwater Vapor—Sanitary Sewer—Residential. Required to be evaluated? Y N

Is the source area(s) zoned for residential use?	Y	N	N/A	1	2	3
Receptor ID Plume Map showing simulated plumes, receptors, and site features provided?	Y	N	N/A	1	2	3
Attachments provided for each chemical of concern requiring documentation?	Y	N	N/A	1	2	3
Receptor Evaluation Map(s) for each receptor inside receptor ID plume provided?	Y	N	N/A	1	2	3
SSTL table provided for each receptor within the receptor ID plume?	Y	N	N/A	1	2	3

List deficiencies: _____

5b Groundwater Vapor—Sanitary Sewer—Nonresidential. Required to be evaluated? Y N

Is the source area(s) zoned for residential use?	Y	N	N/A	1	2	3
Receptor ID Plume Map showing simulated plumes, receptors, and site features provided?	Y	N	N/A	1	2	3
Attachments provided for each chemical of concern requiring documentation?	Y	N	N/A	1	2	3
Receptor Evaluation Map(s) for each receptor inside receptor ID plume provided?	Y	N	N/A	1	2	3
SSTL table provided for each receptor within the receptor ID plume?	Y	N	N/A	1	2	3

List deficiencies: _____

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_____

6. Groundwater Vapor—Sanitary Sewer—Potential. Required to be evaluated? Y N

Is the source area(s) zoned for residential use?	Y	N	N/A	1	2	3
Receptor ID Plume Map showing simulated plumes, receptors, and site features provided?	Y	N	N/A	1	2	3
Attachments provided for each chemical of concern requiring documentation?	Y	N	N/A	1	2	3
Receptor Evaluation Map(s) showing potential receptor boundaries, most limiting SSTL line, and wells selected as T & G wells provided?	Y	N	N/A	1	2	3
SSTL table provided for each receptor within the receptor ID plume?	Y	N	N/A	1	2	3

List deficiencies: _____

_____

_____

7. Groundwater to Plastic Water Line. Required to be evaluated? Y N

Receptor ID Plume Map showing simulated plumes, receptors, and site features provided?	Y	N	N/A	1	2	3
Attachments provided for each chemical of concern requiring documentation?	Y	N	N/A	1	2	3
Receptor Evaluation Map(s) for each receptor inside receptor ID plume provided?	Y	N	N/A	1	2	3
SSTL table provided for each receptor within the receptor ID plume?	Y	N	N/A	1	2	3
If plastic water lines are in simulated plume, have water samples been collected? (cross reference GW analytical data table)	Y	N	N/A	1	2	3

List deficiencies: _____

_____

_____

8. Surface Water. Required to be evaluated? Y N

Receptor ID Plume Map showing simulated plumes, receptors, and site features provided? ..... Y N N/A 1 2 3

Allowable Discharge form provided? ..... Y N N/A 1 2 3

Attachments provided for each chemical of concern requiring documentation? ..... Y N N/A 1 2 3

Receptor Evaluation Map(s) for each receptor inside receptor ID plume provided? ..... Y N N/A 1 2 3

SSTL table provided for each receptor within the receptor ID plume? ..... Y N N/A 1 2 3

List deficiencies: _____

_____

_____

B. SOIL LEACHING PATHWAYS.

(Cross reference pathway attachments submitted with those boxes checked in the report checklist (pages 2 and 3)).

9. Soil Leaching to Groundwater. Required to be evaluated? Y N

9-1a. Groundwater ingestion - drinking water well ..... Y N N/A 1 2 3

Is a receptor ID plume map showing simulated plumes in relation to receptors and site features provided?

..... Y N N/A 1 2 3

Is a Soil SSTL table provided? ..... Y N N/A 1 2 3

9-1b. Groundwater ingestion non-drinking water well ..... Y N N/A 1 2 3

Is a receptor ID plume map showing simulated plumes in relation to receptors and site features provided?

..... Y N N/A 1 2 3

Is a Soil SSTL table provided? ..... Y N N/A 1 2 3

9-2. Groundwater ingestion—potential groundwater source ..... Y N N/A 1 2 3

Is a receptor ID plume map showing simulated plumes in relation to receptors and site features provided?

..... Y N N/A 1 2 3

Is a Soil SSTL table provided? ..... Y N N/A 1 2 3

9-3a. Groundwater vapor—confined space—residential ..... Y N N/A 1 2 3

Is a receptor ID plume map showing simulated plumes in relation to receptors and site features provided?

..... Y N N/A 1 2 3

Is a Soil SSTL table provided? ..... Y N N/A 1 2 3

9-3b Groundwater vapor—confined space—nonresidential ..... Y N N/A 1 2 3

Is a receptor ID plume map showing simulated plumes in relation to receptors and site features provided?

..... Y N N/A 1 2 3

Is a Soil SSTL table provided? ..... Y N N/A 1 2 3

9-4. Groundwater vapor—confined space—potential ..... Y N N/A 1 2 3

Is a receptor ID plume map showing simulated plumes in relation to receptors and site features provided?

..... Y N N/A 1 2 3

Is a Soil SSTL table provided? ..... Y N N/A 1 2 3

9-5a. Groundwater vapor—sanitary sewer—residential ..... Y N N/A 1 2 3

9-5b. Groundwater vapor—sanitary sewer—nonresidential ..... Y N N/A 1 2 3

Is a receptor ID plume map showing simulated plumes in relation to receptors and site features provided?

..... Y N N/A 1 2 3

Is a Soil SSTL table provided? ..... Y N N/A 1 2 3

9-6. Groundwater vapor—sanitary sewer—potential ..... Y N N/A 1 2 3

Is a receptor ID plume map showing simulated plumes in relation to receptors and site features provided?

..... Y N N/A 1 2 3

Is a Soil SSTL table provided? ..... Y N N/A 1 2 3

9-7. Groundwater to plastic water line ..... Y N N/A 1 2 3

Is a receptor ID plume map showing simulated plumes in relation to receptors and site features provided?

..... Y N N/A 1 2 3

Is a Soil SSTL table provided? ..... Y N N/A 1 2 3

9-8. Surface water ..... Y N N/A 1 2 3

Is a receptor ID plume map showing simulated plumes in relation to receptors and site features provided?

..... Y N N/A 1 2 3

Is a Soil SSTL table provided? ..... Y N N/A 1 2 3

List deficiencies: _____

_____

_____

10. Soil Vapor to Enclosed Space. Required to be evaluated? Y N

Soil Vapor to Enclosed Space Map provided for each chemical of concern exceeding a target level? ..... Y N N/A 1 2 3

Have all applicable receptor types been addressed (confined spaces / sanitary sewers; residential / nonresidential)? ..... Y N N/A 1 2 3

Maps include appropriate scale, labels, and titles? ..... Y N N/A 1 2 3

Actual soil plume defined to appropriate target level including 50-foot extension to plume, with receptors shown? ..... Y N N/A 1 2 3

List deficiencies: _____

_____

_____

11. Soil to Plastic Water Line. Required to be evaluated? Y N

Soil to Plastic Water Line Map provided for each chemical of concern exceeding a target level? ..... Y N N/A 1 2 3

Maps appropriately scaled and titles provided? ..... Y N N/A 1 2 3

Actual soil plume defined to appropriate target level including 10-foot extension to plume, and receptors shown? ..... Y N N/A 1 2 3

List deficiencies: _____

_____

_____

C. BEDROCK PATHWAY ASSESSMENT ATTACHMENTS.

(Cross reference pathway attachments submitted with those boxes checked in the report checklist (pages 2 and 3)).

What is the bedrock designation? (Choose only one) _____Exempt Non-Granular _____Granular _____Non-granular

Has an adequate justification for the designation been provided? ..... Y N N/A 1 2 3

Has an hydrogeologic X-section been included? ..... Y N N/A 1 2 3

Has the hydraulic conductivity table been included? ..... Y N N/A 1 2 3

Have TDS values been included? ..... Y N N/A 1 2 3

Granular and Non-granular - Assessment

Soil plume defined to Tier 1 level for soil leaching to groundwater? ..... Y N N/A 1 2 3

All confined spaces within 50 feet of soil gas plume identified? ..... Y N N/A 1 2 3

A minimum of three monitoring wells were installed 50 - 100 feet from soil contamination? .. Y N N/A 1 2 3

If designation is granular, has the groundwater plume been defined to Tier 1 levels? ..... Y N N/A 1 2 3

Groundwater Ingestion (actual & potential):

Hydraulic conductivity of 0.44 m/d or greater reported?	Y	N	N/A	1	2	3
All drinking and non-drinking water wells within 1,000 feet of groundwater source (or soil source if no groundwater contamination) identified?	Y	N	N/A	1	2	3
All drinking and non-drinking water wells within 1,000 feet of the contaminant sources tested for chemicals of concern?	Y	N	N/A	1	2	3
All public water supply systems (supply wells) within one mile of the groundwater source (or soil, if no groundwater contamination) sources identified?	Y	N	N/A	1	2	3
Raw water from all public water supply systems within one mile of the contaminant sources tested for chemicals of concern?	Y	N	N/A	1	2	3
For granular bedrock sites, sentry wells are adequately placed?	Y	N	N/A	1	2	3
Has a map with above items plotted appropriately been included?	Y	N	N/A	1	2	3

Groundwater Vapor to Enclosed Space:

Soil gas plume defined to Tier 1 soil gas target levels?	Y	N	N/A	1	2	3
At a minimum, soil gas is sampled at the expected maximum and near monitoring wells with groundwater that exceeds a Tier 1 level?	Y	N	N/A	1	2	3
Has a soil gas plume map been included?	Y	N		1	2	3

Groundwater to Plastic Water Line:

All plastic water lines within 200 feet of monitoring wells with groundwater contamination that exceeds a Tier 1 level identified?	Y	N	N/A	1	2	3
Estimate of average highest groundwater elevation reported?	Y	N	N/A	1	2	3
Highest groundwater elevation is within three feet of an actual plastic water line?	Y	N	N/A	1	2	3
Has a map locating appropriate plastic water lines been included?	Y	N		1	2	3

Surface Water:

All surface water bodies within 200 feet of source identified?	Y	N	N/A	1	2	3
Correct surface water designation provided?	Y	N	N/A	1	2	3
Visual inspection conducted?	Y	N	N/A	1	2	3
If visual inspection failed or groundwater in monitoring well closest to surface water exceeds a target level, was an allowable discharge concentration calculated?	Y	N	N/A	1	2	3
Has a map locating all surface water bodies been included?	Y	N		1	2	3

Soil Vapor to Enclosed Space - complete section 10, page 14 of this checklist.

Has a map location all enclosed spaces with respect to the soil plume been included?	Y	N		1	2	3

Soil to Plastic Water Line - complete section 11, page 9 of this checklist.

Has a map location all plastic water lines with respect to the soil plume been included?	Y	N		1	2	3

Corrective Action Response

Has excavation or other active remediation for contaminated soil been recommended?	Y	N	N/A	1	2	3

D. OTHER MAPS.

12. Groundwater Summary Corrective Action Map

The most limiting chemical has been selected for map development? ..... Y N N/A 1 2 3

13. Soil Summary Corrective Action Map

The most limiting chemical has been selected for map development? ..... Y N N/A 1 2 3

14. Monitoring Plan Map

Map includes all wells to be monitored for all high and low risk receptors? ..... Y N N/A 1 2 3

Are transition and guard wells adequately located within the SSTL line area or secondary area for each receptor? ..... Y N N/A 1 2 3

15. Land Owner Map

Map includes roads, waterways, property boundaries, and structures? ..... Y N N/A 1 2 3

Map includes all properties within receptor ID plumes classified high or low risk? ..... Y N N/A 1 2 3

Numbered properties on map correspond with tabulated Affected Property Owner Table? ..... Y N N/A 1 2 3

Map scale is illustrated? ..... Y N N/A 1 2 3

16. X, Y Coordinates Map (for submittals after 10/30/97) ..... Y N N/A 1 2 3

17. Zoning Map (required if non-residential target levels are used)

Zoning information provided for areas encompassed by vapor pathways receptor id plumes? ..... Y N N/A 1 2 3

Name and phone number of zoning official contacted provided? ..... Y N N/A 1 2 3

If a zoning map was not included, was another method provided to confirm the zoning designation? ..... Y N N/A 1 2 3

18. Groundwater Source Width/Length Map ..... Y N N/A 1 2 3

19. Soil Source Width/Length Map ..... Y N N/A 1 2 3

20. Soil Contamination Maps

Soil contaminant plumes are defined to default or SSTLs?	Y	N	N/A	1	2	3
Soil contaminant source(s) identified for all chemicals of concern?	Y	N	N/A	1	2	3
A separate map is provided for each chemical of concern?	Y	N	N/A	1	2	3
Map shows most recent sampling results for each sampling point?	Y	N	N/A	1	2	3
Minimum number of soil samples collected?	Y	N	N/A	1	2	3
Adequate number of borings installed to define plume?	Y	N	N/A	1	2	3
Map shows location of soil gas sampling points and analytical results?	Y	N	N/A	1	2	3
Map shows areas of over excavation along with pre-excavation and post-excavation sampling locations and analytical results?	Y	N	N/A	1	2	3

21. Groundwater Contamination Plume Maps

Groundwater contaminant plumes are defined to default or SSTLs?	Y	N	N/A	1	2	3
Map provided for each chemical of concern?	Y	N	N/A	1	2	3
Locations of all groundwater monitoring wells and analytical results used in the Tier 2 analysis are presented?	Y	N	N/A	1	2	3
Adequate number of groundwater monitoring wells installed to define plume?	Y	N	N/A	1	2	3
Map of site area, including roads, waterways, property boundaries, and structures, etc. provided?	Y	N	N/A	1	2	3

22. Groundwater Flow Direction Map

Monitoring wells, measured groundwater elevations, contours, and flow direction shown?	Y	N	N/A	1	2	3
Groundwater elevations measured on same date?(cross reference with GW data tabulation)	Y	N	N/A	1	2	3
Wells constructed/screened in different aquifers are labeled?	Y	N	N/A	1	2	3
Additional flow direction maps show significant deviations of groundwater flow?	Y	N	N/A	1	2	3

23. Well Survey Map

Locations of all water wells within the larger of 1000 feet or the receptor ID plume, (one mile for non-granular bedrock sites) shown?	Y	N	N/A	1	2	3
Numbered locations on map correspond with information presented in Groundwater Well Survey Table?	Y	N	N/A	1	2	3
Map scale is illustrated?	Y	N	N/A	1	2	3

24. Enclosed Space and Conduit Map

All buildings with and without basements, sanitary sewer lines, and water lines within the receptor ID plume shown? ..... Y N N/A 1 2 3

Locations of vapor sampling points shown? ..... Y N N/A 1 2 3

Numbered enclosed spaces and conduit receptors correspond with Enclosed Space / Conduit Survey Table? ..... Y N N/A 1 2 3

Copy of property owner access agreement, date of survey, or identification of property owner provided? ..... Y N N/A 1 2 3

Map scale is illustrated? ..... Y N N/A 1 2 3

If plastic water lines are present, map identifies locations where samples were collected? ..... Y N N/A 1 2 3

25. Surface Water Map

All surface water bodies within the larger of 500 foot radius or receptor ID plume are identified? ..... Y N N/A 1 2 3

Numbered surface water body receptors correspond with Surface Water Survey Table? ..... Y N N/A 1 2 3

Sampling locations and analytical results shown? ..... Y N N/A 1 2 3

Areas inspected for sheen or residue are noted? ..... Y N N/A 1 2 3

Map scale is illustrated? ..... Y N N/A 1 2 3

E. OTHER ATTACHMENTS

26. Laboratory Data Sheets

Check for use of certified lab, OA-1/OA-2 methods; appropriate detection limits, TDS, chromatograms, chain of custody forms, holding times. ..... Y N N/A 1 2 3

All soil and groundwater analytical laboratory sheets are presented (if not previously submitted)? ..... Y N N/A 1 2 3

List deficiencies: _____

_____

_____

_____

27. Soil Vapor Monitoring Well Construction Diagrams

IDNR form 542-1392 used for all borings/monitoring wells, or previous report referenced? ..... Y N N/A 1 2 3

Vertical extent of contamination defined? ..... Y N N/A 1 2 3

Form complete? (PID readings if applicable, static water level, construction specifications, depth interval of soil sample, if applicable, indicated, etc.) ..... Y N N/A 1 2 3

List deficiencies: _____

_____

_____

28. Soil Boring Logs / Monitoring Well Construction Diagrams

IDNR form 542-1392 used for all borings/monitoring wells, or previous report referenced? ..... Y N N/A 1 2 3

Vertical extent of contamination defined? ..... Y N N/A 1 2 3

Form complete? (PID readings, static water level, construction specifications, depth interval of soil sample indicated, etc.) ..... Y N N/A 1 2 3

List deficiencies: _____

_____

_____

29. Water Well Logs

Copies of all available water well logs provided? ..... Y N N/A 1 2 3

30. Off-Site Contamination Source Support Data

Analytical data related to the off-site source provided? ..... Y N N/A 1 2 3

Provided maps show site, off-site source and groundwater flow direction? ..... Y N N/A 1 2 3

31. Tier 1 Selected Information: - Site History (page 5)

Site History (page 5/T1) ..... Y N N/A 1 2 3

Current Site Conditions (page 6/T1) ..... Y N N/A 1 2 3

Hydraulic Conductivity (page 10/T1) ..... Y N N/A 1 2 3

Tier 1 Appendix 1 - Topographic Site Map ..... Y N N/A 1 2 3

Tier 1 Appendix 2 - Site Plan Map ..... Y N N/A 1 2 3

Tier 1 Appendix 4-Field Screening Map (not required for approved SCR) ..... Y N N/A 1 2 3

Tier 1 Appendix 11 - Tank Tightness Test Results ..... Y N N/A 1 2 3

Tier 1 Appendix 14 - Hydraulic Conductivity Measurements

A narrative summary of the K methodology provided (includes method of slug removal, method of data collection) ..... Y N N/A 1 2 3

Recovery data and variables with units provided? ..... Y N N/A 1 2 3

Calculations acceptable and include filter pack adjustment? ..... Y N N/A 1 2 3

Minimum of three slug tests performed? (approved SCRs - minimum of two) ..... Y N N/A 1 2 3

Computed K values agree with lithologic data presented on the boring logs? ..... Y N N/A 1 2 3

Was K recalculated? ..... Y N N/A 1 2 3

Explanation why K was recalculated provided? ..... Y N N/A 1 2 3

Recalculated Hydraulic Conductivity (to be completed by reviewer if reviewer recalculates K)

Recalculated K: _____ m/d. Explain why K value was recalculated: _____

_____

_____

Default Assumptions for Hydraulic Conductivity

- 0.45 m/d at sites where reported K was not representative and cannot be recalculated.
- 5 m/d at exempt granular bedrock where K too high to measure.
- Reported or recalculated K at exempt granular bedrock where K >0.44 m/d.
- 0.44 m/d at exempt granular bedrock where reported or recalculated K was <0.44 m/d.

Default Assumption for TDS when not measured: <2500 mg/L.

F. Corrective Action Documentation - *optional*

32.

Declaration of Restrictive Covenants / Institutional Controls

Form is dated?	Y	N	N/A	1	2	3
Exhibit "A" is provided?	Y	N	N/A	1	2	3
Description of restrictions is provided?	Y	N	N/A	1	2	3
Name of declarant is entered?	Y	N	N/A	1	2	3
Authorizing agent affixed signature?	Y	N	N/A	1	2	3
Form is notarized?	Y	N	N/A	1	2	3
Legal description of property provided?	Y	N	N/A	1	2	3
Does institutional control prohibit / restrict use to appropriate distance from source?	Y	N	N/A	1	2	3
Ordinance accepted?	Y	N	N/A	1	2	3

Abandoned Water Well Plugging Records

IDNR FORM 542-1226 provided?	Y	N	N/A	1	2	3

Water Supply (IDNR) / Designated County Agent Notification

IDNR form 542-1530 complete?	Y	N	N/A	1	2	3
Site maps showing contamination provided?	Y	N	N/A	1	2	3

Sanitary Sewer Notification

IDNR form 542-1532 complete?	Y	N	N/A	1	2	3
Site maps showing contamination provided?	Y	N	N/A	1	2	3

Utility Company Notification

IDNR form 542-1531 complete?	Y	N	N/A	1	2	3
Site maps showing contamination provided?	Y	N	N/A	1	2	3

Report of Plastic Water Line Removal and/or Relocation

Report of replacement / relocation provided as an Appendix to the Tier 2 Report?	Y	N	N/A	1	2	3
Documentation of Utility Company approval for replacement /relocation provided?	Y	N	N/A	1	2	3
If plastic water line was replaced, have construction details (material of new pipe, backfill material, burial depth) been provided?	Y	N	N/A	1	2	3
Have relocated plastic water lines been moved outside of both the simulated and actual plumes?	Y	N	N/A	1	2	3
Documentation that relocation area is free of contamination provided?	Y	N	N/A	1	2	3
Construction details (backfill material, burial depth) of relocated plastic water lines provided?	Y	N	N/A	1	2	3
Scaled site diagram shows pertinent site features, soil and groundwater contamination, former and current location of plastic water lines, and location of new non-plastic water lines ?	Y	N	N/A	1	2	3

Report of Over Excavation (OE) Activities

Report of the OE provided as an Appendix to the Tier 2 report?	Y	N	N/A	1	2	3
Field screening conducted prior to OE to estimate extent of soil contamination?	Y	N	N/A	1	2	3
Was adequate field screening performed during the OE activities to identify maximum concentrations? (One soil sample for field screening every 100 square feet of the base and the each sidewall).	Y	N	N/A	1	2	3
Was adequate confirmation soil sampling performed during the OE activities? (One soil sample for laboratory analysis every 400 square feet of the base and 400 square feet of each sidewall).	Y	N	N/A	1	2	3
Is OE less than 400 ft^2 of exposed surface?	Y	N	N/A	1	2	3
If OE is less than 400 ft^2 of exposed surface, were a minimum of one soil sample from each sidewall and one soil sample from the base collected and analyzed by a laboratory?	Y	N	N/A	1	2	3
Results of visual observations and field screening presented?	Y	N	N/A	1	2	3
Copies of the analytical data for the soil samples provided?	Y	N	N/A	1	2	3
A scaled site diagram with the following illustrated:						
Area of the original contamination	Y	N	N/A	1	2	3
Dimensions and limits of the over excavation	Y	N	N/A	1	2	3
Field screening sample locations	Y	N	N/A	1	2	3
Location of soil samples submitted for laboratory analysis	Y	N	N/A	1	2	3
Groundwater sampling borehole and well locations	Y	N	N/A	1	2	3
Pertinent site features such as buildings, roads, utilities etc.	Y	N	N/A	1	2	3
Groundwater flow direction	Y	N	N/A	1	2	3
Soil samples shipped to the laboratory within 72 hours?	Y	N	N/A	1	2	3
Iowa certified laboratory used?	Y	N	N/A	1	2	3
Was the appropriate OA-1 and / or OA-2 analysis conducted?	Y	N	N/A	1	2	3

Documentation provided that soil was properly disposed of in accordance with 567-chapters 100, 101, 102, 120, and 121?..... Y N N/A 1 2 3

Land application form documentation provided?..... Y N N/A 1 2 3